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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

EXAMINER	
NORTON, JENNIFER L	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	10/501,561	DAS ET AL.	
	Examiner	Art Unit	
	Jennifer L. Norton	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/14/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-56 are pending.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 3, element 346 and Fig. 4, element 414. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "412" in Fig. 4 has been used to designate both "model parameter tuning block" and "steady state checks" in the specification (pg. 8, par. [0087]). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 37-48 and 55-56 are rejected under 35 U.S.C. 101. Claims 37-48 and 55-56 include the phrase "computer readable medium", which has been defined by the specification to include "carrier waves" (pg. 5, par. [0052]). Such waves are not considered to be patentable subject matter, see O'Reilly v. Morse, 56 U.S. (15 How) 62 (1854).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 49-56 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,529,780 (hereinafter Soergel)

7. As per claim 49, Soergel discloses a computer-implemented system for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, the system comprising:

a memory configured to store instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59); and

a processor configured to execute instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) for:

a predictive model that predicts an output from data input (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3),

an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42),

a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3), and

an artificial intelligence that receives requests and information from one of manufacturers or customers, and directs the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), wherein the predictive model, the optimizer, and the library interconnect with the artificial intelligence (col. 4, lines 31-36).

8. As per claim 50, Soergel discloses a computer-implemented system for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, the system comprising:

a memory configured to store instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59); and

a processor configured to execute instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) for:

a predictive model that predicts an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufactures or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25),

an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25), and

a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25).

9. As per claim 51, Soergel discloses a computer-implemented method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

providing a predictive model that predicts an output from data input (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

providing an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42);

providing a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3); and

providing an artificial intelligence that receives requests and information from one of manufacturers or customers, and directs the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the

optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), wherein the predictive model, the optimizer, and the library interconnect with the artificial intelligence (col. 4, lines 31-36).

10. As per claim 52, Soergel discloses a computer-implemented method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

providing a predictive model that predicts an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

providing an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25); and

providing a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25).

11. As per claim 53, Soergel discloses a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

predicting an output from data input with a predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

optimizing input variables based upon desired output variables with an optimizer (col. 4, lines 36-42);

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) in a library (Fig. 2, element 18); and

receiving requests and information from one of manufacturers or customers with an artificial intelligence, and directing the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45).

12. As per claim 54, Soergel discloses a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

predicting an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers with a predictive model (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

optimizing input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers with an optimizer (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25); and

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25) in a library (Fig. 2, element 18).

13. As per claim 55, Soergel discloses a computer readable medium that stores instructions executable by at least one processor to perform a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising instructions for:

predicting an output from data input with a predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

optimizing input variables based upon desired output variables with an optimizer (col. 4, lines 36-42);

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) in a library (Fig. 2, element 18); and

receiving requests and information from one of manufacturers or customers with an artificial intelligence, and directing the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an

optimized to input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45).

14. As per claim 56, Soergel discloses a computer readable medium that stores instructions executable by at least one processor to perform a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising instructions for:

a predicting an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers with a predictive model (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

optimizing input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers with an optimizer (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25); and

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25) in a library (Fig. 2, element 18).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,529,780 (hereinafter Soergel) in view of U.S. Patent No. 6,647,342 (hereinafter Iglesia).

17. As per claim 1, Soergel teaches a computer-implemented system for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, the system comprising:

a memory configured to store instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59);

a processor configured to execute instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) for:

a predictive model that predicts an output from data input (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3),

an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42),

a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3), and

an artificial intelligence that receives requests and information from one of manufacturers or customers, and directs the requests and information to the predictive

model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), wherein the predictive model, the optimizer, and the library interconnect with the artificial intelligence (col. 4, lines 31-36).

Soergel does not expressly teach a high-throughput screening system for analyzing various material combinations and sending data to the library.

Iglesia teaches to a high-throughput screening system for analyzing various material combinations (col. 4, lines 30-64) and sending data to the library (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a high-throughput screening system for analyzing various material combinations and sending data to the library to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

18. As per claim 2, Soergel teaches a computer-implemented system wherein the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

19. As per claim 3, Soergel teaches the artificial intelligence (col. 4, lines 31-36) receives requests and information from one of the manufacturers or customers (Fig. 3, element 25) via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

20. As per claim 4, Soergel as set forth above teaches the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

21. As per claim 5, Soergel does not expressly teach a means for supplying information and data received from one of research laboratories or universities, via the Internet to the library.

Iglesia teaches to a means for supplying information and data received from one of research laboratories or universities, via the Internet to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a means for supplying information and data received from one of research laboratories or universities, via the Internet to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

22. As per claim 6, Soergel teaches a means for supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers (Fig. 3, element 25) to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

23. As per claim 7, Soergel teaches a computer-implemented system for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, the system comprising:

a memory configured to store instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59);

a processor configured to execute instructions (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) for:

a predictive model that predicts an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25),

an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25), and

a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25).

Soergel does not expressly teach a high-throughput screening system for analyzing various material combinations and sending data to the library.

Iglesia teaches to a high-throughput screening system for analyzing various material combinations (col. 4, lines 30-64) and sending data to the library (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a high-throughput screening system for analyzing various material combinations and sending data to the library to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

24. As per claim 8, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

25. As per claim 9, Soergel teaches a computer-implemented system (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) wherein the requests and information from one of the manufacturers or customers (Fig. 3, element 25) is supplied via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

26. As per claim 10, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

27. As per claim 11, Soergel does not expressly teach a means for supplying information and data received from one of research laboratories or universities, via the Internet, to the library.

Iglesia teaches to a means for supplying information and data received from one of research laboratories or universities, via the Internet to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a means for supplying information and data received from one of research laboratories or universities, via the Internet to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

28. As per claim 12, Soergel teaches a means for supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of

the manufacturers or customers to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

29. As per claim 13, Soergel teaches a computer-implemented method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

providing a predictive model that predicts an output from data input (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

providing an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42);

providing a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3);

providing an artificial intelligence that receives requests and information from one of manufacturers or customers, and directs the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), wherein the predictive model, the optimizer, and the library interconnect with the artificial intelligence (col. 4, lines 31-36).

Soergel does not expressly teach to providing a high-throughput screening system for analyzing various material combinations and sending data to the library.

Iglesia teaches to providing a high-throughput screening system for analyzing various material combinations (col. 4, lines 30-64) and sending data to the library (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include providing a high-throughput screening system for analyzing various material combinations and sending data to the library to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

30. As per claim 14, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

31. As per claim 15, Soergel teaches the artificial intelligence (col. 4, lines 31-36) receives requests and information from one of the manufacturers or customers (Fig. 3,

element 25) via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

32. As per claim 16, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

33. As per claim 17, Soergel does not expressly teach a computer-implemented method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library.

Iglesia teaches to a computer-implemented method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a computer-implemented method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical

issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

34. As per claim 18, Soergel teaches a computer-implemented method further comprising supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

35. As per claim 19, Soergel teaches a computer-implemented method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

providing a predictive model that predicts an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

providing an optimizer that optimizes input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

providing a library (Fig. 2, element 18) that stores data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25).

Soergel does not expressly teach providing a high-throughput screening system for analyzing various material combinations and sending data to the library.

Iglesia teaches to providing a high-throughput screening system for analyzing various material combinations (col. 4, lines 30-64) and sending data to the library (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include providing a high-throughput screening system for analyzing various material combinations and sending data to the library to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

36. As per claim 20, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

37. As per claim 21, Soergel teaches a computer-implemented method (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) wherein the requests and information from one of the manufacturers or customers (Fig. 3, element 25) is supplied via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

38. As per claim 22, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

39. As per claim 23, Soergel does not expressly teach a computer-implemented method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library.

Iglesia teaches to a computer-implemented method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a computer-implemented method further comprising supplying information and data received from

one of research laboratories or universities, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

40. As per claim 24, Soergel teaches a computer-implemented method further comprising supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

41. As per claim 25, Soergel teaches to a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

predicting an output from data input with a predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

optimizing input variables based upon desired output variables with an optimizer (col. 4, lines 36-42);

storing data and information in a library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18);

receiving requests and information from one of manufacturers or customers with an artificial intelligence, and directing the requests and information to the predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45).

Soergel does expressly teach analyzing various material combinations and sending data to the library with a high throughput screening system.

Iglesia teaches to analyzing various material combinations (col. 4, lines 30-64) and sending data to the library (col. 4, lines 6-9) with a high throughput screening system.

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include analyzing various material combinations and sending data to the library with a high throughput screening system to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly

selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

42. As per claim 26, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

43. As per claim 27, Soergel teaches the artificial intelligence (col. 4, lines 31-36) receives requests and information from one of the manufacturers or customers (Fig. 3, element 25) via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

44. As per claim 28, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

45. As per claim 29, Soergel does not expressly teach a method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library.

Iglesia teaches to a method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

46. As per claim 30, Soergel teaches a method further comprising supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

47. As per claim 31, Soergel teaches a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising:

predicting an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers with a predictive model (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

optimizing input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers with an optimizer (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13 and col. 8, lines 1-3) from one of the manufacturers or customers in a library. (col. 5, lines 61-64, col. 6, lines 25-45, Fig. 2, element 18 and Fig. 3, elements 22-25)

Soergel does not expressly teach analyzing various material combinations and sending data to the library with a high-throughput screening system.

Iglesia teaches to analyzing various material combinations (col. 4, lines 30-64) and sending data to the library with a high throughput screening system (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include analyzing various material combinations and sending data to the library with a high throughput screening system to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

48. As per claim 32, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

49. As per 33, Soergel teaches a method wherein the requests and information from one of the manufacturers or customers (Fig. 3, element 25) is supplied via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

50. As per claim 34, Soergel as set forth above teaches a method wherein the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

51. As per claim 35, Soergel does not expressly teach a method further comprising supplying information and data received from one of research laboratories or universities. via the Internet, to the library.

Iglesia teaches to a method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a method further comprising supplying information and data received from one of research laboratories or universities, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

52. As per claim 36, Soergel teaches a method further comprising supplying information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53)

in the field of one of the manufacturers or customers to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

53. As per claim 37, Soergel teaches a computer readable medium that stores instructions executable by at least one processor to perform a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising instructions for:

predicting an output from data input with a predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3);

optimizing input variables based upon desired output variables with an optimizer (col. 4, lines 36-42);

storing data and information in a library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18); and

receiving requests and information from one of manufacturers or customers with artificial intelligence and directing the requests and information to tile predictive model if an output prediction is requested by one of the manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45), or to the optimizer if an optimized input based on a desired output is requested by one of the, manufacturers or customers (col. 4, lines 31-36, col. 5, lines 61-64 and col. 6, lines 25-45).

Soergel does not expressly teach various material combinations are analyzed and data is sent to the library with a high-throughput screening system.

Iglesia teaches to various material combinations are analyzed (col. 4, lines 30-64) and data is sent to the library with a high-throughput screening system (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include various material combinations are analyzed and data is sent to the library with a high-throughput screening system to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

54. As per claim 38, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

55. As per claim 39, Soergel teaches the artificial intelligence (col. 4, lines 31-36) receives requests and information from one of the manufacturers or customers (Fig. 3,

element 25) via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

56. As per claim 40, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

57. As per claim 41, Soergel does not expressly teach a computer readable medium wherein information and data received from one of research laboratories or universities is supplied, via the Internet, to the library.

Iglesia teaches to a computer readable medium wherein information and data received from one of research laboratories or universities is supplied, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a computer readable medium wherein information and data received from one of research laboratories or universities is supplied, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues

related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

58. As per claim 42, Soergel teaches a computer readable medium wherein information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers is supplied to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

59. As per claim 43, Soergel teaches a computer readable medium that stores instructions executable by at least one processor to perform a method for measuring and improving manufacturing processes and maximizing product research and development speed and efficiency, comprising instructions for:

predicting an output from input data (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) supplied by one of manufacturers or customers with a predictive model (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25);

optimizing input variables based upon desired output variables (col. 4, lines 36-42) requested by one of the manufacturers or customers with an optimizer (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, elements 22-25); and

storing data and information (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3) from one of the manufacturers or customers in a library (col. 5, lines 61-64, col. 6, lines 25-45, Fig. 2, element 18 and Fig. 3, elements 22-25).

Soergel does not expressly teach various material combinations are analyzed and data is sent to the library with a high to throughput screening system.

Iglesia teaches to various material combinations are analyzed (col. 4, lines 30-64) and data is sent to the library with a high-throughput screening system (col. 4, lines 6-9).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include various material combinations are analyzed and data is sent to the library with a high-throughput screening system to accelerate development and scale-up of new materials without the impediments introduced by conventional combinatorial approaches based on randomly selected materials prepared under unrealistic and difficult to scale up conditions (col. 4, lines 9-14).

60. As per claim 44, Soergel teaches the predictive model (col. 4, lines 13-23, col. 2, lines 62-67, col. 3, lines 1-3) further performs a what if analysis (col. 4, lines 16-19).

61. As per claim 45, Soergel teaches a computer readable medium (col. 2, lines 62-67, col. 3, lines 1-3 and col. 6, lines 51-59) wherein the requests and information from one of the manufacturers or customers (Fig. 3, element 25) is supplied via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

62. As per clam 46, Soergel teaches as set forth above the high-throughput screening system sends data via the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET).

63. As per claim 47, Soergel does not expressly teach a computer readable medium wherein information and data received from one of research laboratories or universities is supplied, via the Internet, to the library.

Iglesia teaches to a computer readable medium wherein information and data received from one of research laboratories or universities is supplied, via the Internet, to the library (col. 8, lines 49-57).

Therefore, it would be obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Soergel to include a computer readable medium wherein information and data received from one of research

laboratories or universities is supplied, via the Internet, to the library to allow rapid and effective management of information so as to decrease the labor and time intensity of data handling. This will permit the scientists to focus on the key technical issues related to the catalyst problem being addressed and to assist them in making decisions. The iterative approach also permits the rapid and continuous refinement of the predictive model (col. 9, lines 1-8).

64. As per clam 48, Soergel teaches a computer readable medium wherein information and data received from the Internet (col. 5, lines 61-64, col. 6, lines 25-45 and Fig. 3, element INTERNET) regarding the latest developments (col. 3, lines 42-53) in the field of one of the manufacturers or customers is supplied to the library (col. 5, lines 37-42, col. 7, lines 11-13, col. 8, lines 1-3 and Fig. 2, element 18).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to a performance improvement system.

U.S. Patent No. 6,611,735 discloses a process and method for the prediction of properties of and the optimization of a plant's output of products from a source or sources of raw materials.

U.S. Patent Publication No. 2002/0133302 discloses an environmental performance improvement support system that supports improvement of effects on the environment due to discharging chemical substances and to an environmental performance improvement support method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Norton whose telephone number is 571-272-3694. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Knight
Supervisory Patent Examiner
Art Unit 2121